II.—CLIMATE IN THE CARPATHIANS

132 IN CLIMATE, as in structure, the Carpathian region is related both to Western Europe and to the steppe lands farther east, but it is essentially continental with the characteristic cold winter and hot summer, and usually a maximum of rainfall in June, delayed at Vatra Dornei (Dorna Vatra) until July. Dorohoi (Dorohoiu)—4.2° C.; Cernauţi (Czernowitz) —5.1° C.; and Vatra Dornei—6.4° C., have specially low mean monthly temperatures for January, the last named owing its low figure especially to its height (789 m.) above sea level, a fact which helps to account for its five months (Nov.-March) with mean monthly temperatures below freezing point as against three (Dec.-Feb.) in the other cases. On the Transylvanian side both Cluj and Sibiu (Hermannstadt) also have three months (Dec.-Feb.) with mean monthly temperatures below freezing point. On both sides of the Carpathians the mean monthly temperature is highest in July with figures round about 19.5° C. save in the case of Vatra Dornei which is considerably higher than the other stations named and has a maximum mean temperature of 14.2° C. delayed until July. Out towards the Russian plain the Dec.-Feb. period below freezing point and the January mean monthly temperature approximately correspond, allowing for difference of altitude. Iaşi, at 100 metres, has —3.3° C. in January and Chişinau (Kishinev), at 96 metres, has —4.0° C., but there the summer maximal mean monthly temperatures are higher and later, 21.2° C. at Iaşi and 21.9° C. at Chişinau, both in July with a continuation of these hot conditions into August. Chişinau has mean monthly temperatures below freezing point for four months (Nov.-Feb.). Beneath the south-eastern Carpathians at Focşani there are as before three months of frost, and the highest mean monthly temperature is 21.7° C. for July with a continuation of hot conditions into August. The range of mean monthly temperatures during the year is usually 23° C. to 25° C. but is lower, for lack of prolonged summer heat, at such a place as Vatra Dornei. Differences in temperature related to height-differences are as usual far more marked in summer than in winter in many cases, as in winter the inner valleys of the highlands may have long periods of intense cold if they are narrow and shaded from

32 the sun's rays and so may be much colder, especially during calm periods which are frequent, than places with southward aspect on the hills above: on occasion a difference of 20° C. has been noted. Places out in the opener lands towards Russia feel the winter cold of the steppe spreading westward, but both these and places in shut-in valleys may be very dry. The high pastures have a good deal of snow in winter and are nearly forsaken at that season but, when the snow melts in spring, growth sets in rapidly, and the change of season is [137] sudden. Out east in the opener lands there is, however, for a while a danger of the sudden recurrence of frost (the Ice Saints in the Russian steppe), a fact which helps to limit the eastward extension of the beech tree almost as much as does the summer heat, for both these conditions are specially harmful to the delicate beech leaves. Roumania is thus on the eastern limit of the general European distribution of the beech which is one of the characteristic plants of western and central Europe and is absent from Russia, save the Crimea and parts of the Caucasus region. It is important to note that winter cold is not an important factor of this distribution as the beech grows on the higher slopes of the Carpathians under severe conditions.

A MONTH with an average of less than 25 mm. (or 1 inch) of rain or the equivalent in snow is very rare save at Cernauţi, Dorohoi, Vatra Dornei and Chişinau in winter especially January. The summer maximum is in June at Dorohoi (102 mm.); at Cernauţi June and July both average 94 mm.; at Vatra Dornei June has 129 and July 135 mm. On the west side of the Carpathians, at Cluj and Sibiu, for example, the June rainfall is the highest (111-114 mm.), and the figures show a tendency to rather more rain in April and May as well as in July and August than on the east side. The annual totals on both sides of the Carpathians in the latitude of most of the places named may be said to vary between 550 and 750 mm. Farther south, on the east side, at Focşani, for example, the June rainfall attains only 82 mm. average, and May and July have 60 mm. and 57 mm. respectively; further, the annual total is just 550 mm. and at Buzau (Buzeu) rather farther south it diminishes to 476 mm., and at Constanţa to 381 mm. At Vatra Dornei it may rain on nearly half the days of the year, at Buzau on hardly a quarter. At Vatra Dornei, moreover, precipitation may be

132 in the form of snow during any month save July or August. Thunderstorms are frequent in the afternoons during June and July but they rarely occur from November to March. Thunderstorm rain is thus a feature of summer in the Carpathians.

ON THE MOUNTAINS the winter anticyclonic calms often give clear skies while the spring and to some extent the summer until July are apt to be cloudy. Air may stream from the anticyclone on the heights to Wallachia and southern Moldavia and the Black Sea, so north-westerly winds are a marked feature in these lower lands in winter. In Transylvania though summer has most rain December is the cloudiest and August the clearest month.

IT IS CUSTOMARY to draw attention to the complete absence of the climatic conditions that are apt to prevail near the Mediterranean Sea. Roumania is emphatically un-Mediterranean in climate. Its relation is with western Europe on the one hand and the Russian steppe on the other. If a period of greater cold or increased precipitation, or both, supervened, the Carpathians could well develop a permanent snow cap, and it has been stated in the last section that there are cirques on some of the heights indicating that this has happened in the past. It would be very interesting to know whether any developments in this direction occurred during the cold, wet period of the west about 700 B.C. On the whole perhaps the indications are that the winters would have been harder rather than wetter to any great extent, but this phase may well have been followed by one in which, before warmer conditions were re-established, there was a lot of rain. During the Pleistocene Age, in one or other, probably in one of the later, of the glacial phases, if not in more, there must have been glaciers in the high lands with enormous amounts of flowing water in the immediately post-glacial stages. On the other hand, if a period of reduced rainfall, and perhaps greater summer heat, supervened, steppe conditions and æolian deposits would easily become a feature of Roumania, and there are abundant indications of their importance in the country at some early periods; loess is widely distributed not only in eastern Wallachia, the southern and eastern Dobrogea and middle Moldavia, but also in some of the drier upland valleys such as that of the upper Olt.

241 132 221 IT WILL be seen that structure and climate conspire together to encourage a scheme of summer utilisation of high pastures combined with valley cultivation that was much enriched when the maize plant was introduced, but this was not so long ago, and the older régime was none too prosperous both because of climatic troubles in the highlands and especially the sensitiveness of the wheat plant to abnormal seasons, and because of the hindrances to organisation arising from the diversities of language between governments and 371 subjects. The encouragement of industry was not easy while some lignite and a little coal were the main sources of power, but later on it became possible to use abundant petroleum and natural gas and we have yet to see, in the 565 next generation, what influence they may have. Up to the 241 present, however, a true peasantry survives, and has increased its hold on the soil; it still makes at home a great proportion of what it needs, it still finds that in the hills the maize crop may not ripen, and old communal schemes relating to the high pastures remain important.

VI.—ECONOMIC ROUMANIA

AGRICULTURE.

311 MODERN ROUMANIA is essentially an agricultural state, as
162 was the Old Kingdom (43 to 46 per cent of the land being arable and 22 per cent forest, whilst over 80 per cent of the population of 18 millions are agricultural workers), although it has valuable potentialities for the development of industry.

132 ARRANGED in zones round the bastion of the southern and
241 eastern Carpathian highlands, the main agricultural regions
134 of post-war Roumania exhibit, according to aspect and altitude, a considerable variety of climatic conditions, which is reflected in a varying emphasis in the selection of crops raised. In general, we may say that the continental nature of the climate and the resulting succession from north to south and from highland to lowland of soils, graded from poor ashen-grey podsol in the Carpathians through oak-forest loams to a rich chernoziom in the south-eastern Danube plains, has resulted, wherever the ground is sufficiently level, in a concentration on grain production. The heavier rainfall of the uplands, the relatively great humidity and shelter from the driving winds that sweep across the open plains, coupled with the exposure of less
[137] fertile rocks—granites and coarse sandstones—explains the large area of forested land (24.5 per cent, nearly 7¼ million hectares) in those districts that extend into the Carpathian highlands.

243 OF THE 13 odd million hectares of arable land, cereals occupy some 37 to 39 per cent. Production varies greatly from year to year and from district to district. In the old kingdom of Wallachia-Moldavia, maize is by far the heaviest crop, particularly in Oltenia, where the summer rainfall is heavier. It is also the heaviest crop in Transylvania, the cultivated areas under maize, wheat, barley and oats being
[262] respectively 4, 3, 2 and 1 million hectares. Maize is the staple crop of the peasant holder almost throughout the country, for it not only provides the bread cakes and the "mamaliga," maize pudding, the main food of the mass of the people, but also fodder for the cattle to eke out the hay in

133 material eroded therefrom being spread out fanwise along
361 the edge of the alluvium. Higher up, small alp-like terraces appear, giving place to precipitous slopes once more where calcareous rocks of Triassic and Jurassic age occur.

132 CONCERNING climate and vegetation little need be added to
361 the accounts already given of the Eastern Carpathians as a whole. In the case of climate the most important features to be borne in mind are the risk of late summer storms that limit the ripening period for grain, and the winter snowfall which creates a close season for agriculture.

THE VILLAGE.

361 CORBU has been tentatively classified as a "dispersed" type of village, though it is clear from the photographs (Plate IX) that the narrowness of the valley has rather limited the extent of the dispersion and has given rise to a plan resembling that of the "street village" of Western Europe. Closer examination, however, will reveal a certain looseness of structure, especially where a slight widening of the valley occurs near the confluence of a tributary stream, and it is very probable that if the same village had been founded in a broad flat upland area the houses would have been spread out as in Bilbor (see Plate I).

PEASANT HOUSES.

342 A GROUP of typical Roumanian farmsteads is illustrated in Plate X whilst the plan on page 67 shows in detail the lay-out of the one depicted on page 43. The principal features in each case are clear. The dwelling houses, of which there are frequently two to a farm, can usually be distinguished by their bright colour-washed walls. There is an abundance of local stone, but the crystalline rocks that are nearest to hand are very intractable, and, although they are employed for the foundations, the superstructure is almost invariably of wood. In Lower Borsec, which is just visible in the distance in Plate IX, an outcrop of Travertine provides a much more easily-worked material, and is very freely employed, but its use does not appear to extend into Corbu. The walls of the Corbu houses are usually built of roughly-squared, less frequently of sawn, timber, to which, in the better-class houses, laths are nailed to form a key for

5: Fleure S-5 (no date)1-39 EDI Rumania EDI

FARMING AROUND CURTEA DE ARGEŞ

AMY R. BURGESS

133 IN THE region of Curtea de Argeş the river flows in a valley of varying width, floored with fine sandy alluvium and bounded by somewhat rounded hills. Some traces of river terraces are discernible.

THE LAND of this region can be divided into four categories: (*a*) arable, (*b*) hay meadows, (*c*) forest, (*d*) high mountain pasture. The arable land is principally on the first terrace, but stretches both down the slope to the valley bottom and up the slope to the second terrace. The hay meadows are above the arable land, spreading upwards towards the [137] forest. The forests comprise 75 per cent of the total area, and consist mainly of timber trees, such as beech and pine, together with a considerable number of walnut trees. The high pastures are above the forest belt and may be as much as fifty kilometres away from the village centre of the commune to which they belong.

423 THE ARABLE land is owned by the peasants, holdings ranging from less than one hectare to fifty hectares, the majority being from two to five hectares. The smallness of the holding [428] is due partly to the laws of inheritance, by which the land is divided between the children on the death of the owner, and partly to the fact that the district is so hilly that only small areas are available for cultivation.

241 476 THE HAY meadows belong to the commune and are both worked and used collectively by the peasants, all necessary organization being in the hands of the mayor and committee.

471 [313] THE FORESTS are largely state-owned, although some portions belong to the commune, in which case the peasants are allowed to cut for their own personal use (house-building, implements, etc.), but not for profit.

[235] THE HIGH pastures belong to the commune; the peasants pay a small fee to the commune for their use (20 lei per head per season for sheep, rather more for cattle).

132 AN IMPORTANT climatic feature affecting agriculture is the shortness of the summer, late spring and early autumn frosts

132 being common at this height (440 metres and upwards). July and August are the hottest months.

THE MEAN annual rainfall for Curtea de Argeş (taken over a period of nine years) is 672 mm. Precipitation occurs all the year round, but the rainiest months are May and June.

243 THE PRINCIPAL crop is maize, from which not only is the staple food "mamaliga" made, but the stems and leaves are used for animal fodder and bedding. Oats and rye are grown for fodder on the larger farms only. Wheat is not grown in the region. Soil and climate are suitable, but at present the peasant possesses very little machinery; harvesting would have to be done with a sickle or scythe and threshing with a flail. It is easier to buy such wheat as is required from the Wallachian Plain.

244 IN ADDITION to the above, every farm, however small, grows various vegetable crops: pumpkins for fodder, tomatoes, paprika, potatoes, onions, runner beans, cabbages, aubergines, often amongst the maize, sometimes as ground crops in the orchards.

246 CULTIVATED FODDER crops are grown only on the larger farms, and consist of clover, lucerne and sometimes a mixture of vetch and oats, and very occasionally turnips.

THE LOWER slopes of the hills form the natural hay meadows of the commune, but occasionally the grass of the orchard is used as rough pasture.

248 HEMP IS grown on the low-lying farms, usually as a boundary crop for the maize. Flax is also grown, but very few sunflowers.

245 AN IMPORTANT aspect of agriculture around Curtea de Argeş is fruit cultivation. Apples, pears and plums are the main crops, with occasional cherries. Every farm, however small, has some fruit trees, sometimes scattered over the whole holding, but more usually in a small orchard. Sufficient apples are grown to allow a considerable export trade to Bucharest. Plums are used for the manufacture of the alcoholic drink tuica in Curtea de Argeş. Recently plum-drying has been tried, and is already being taken up successfully by the more enterprising peasants. Walnuts also are gathered and sold.

133 635 cally, of the Bulgarian plateau that projects northward to the Danube delta. The northern part is covered by hills, gradually sloping southwards towards the vast wooded but waterless stretches of the Dely-Orman, part of which still lies in Bulgaria.

The Banat and the Crishana form parts of the Hungarian plain and possess the same climatic and agricultural features as the latter. The eastern part of the Banat is mountainous, forming geologically an extension of Transylvania and of the western spurs of the southern Carpathians, while the Crishana is separated from Transylvania on the east by the mountainous mass of the Bihor mountains, reaching to an altitude of 1,800 meters.

Transylvania forms a circular tableland whose mean altitude is from 350 to 600 meters, and forms the essential nucleus of Rumania, both geographically and ethnically. It is encircled to the north, east, and south by the Carpathians, which occasionally reach to an altitude of 2,000 meters in the north and 2,544 meters in the southern section. Owing to an [132] average annual rainfall of about 35 inches, numerous streams take their rise and drain the region, breaching the mountain rim and thus forming the main ways of egress. The Somesh, Muresh, and Timish, the former two affluents of the Theiss, the latter of the Danube, connect Transylvania with the Hungarian plain and with the Banat, while to the south the river Olt flows through the Red Tower pass to join the Danube and offers the main and easiest way of access into Rumania. The whole region consists of an undulating upland cut up by ranges of hills into valleys, some of which are fairly extensive and fertile, owing to the frequency of [310] alluvial deposits. The mountains are thickly wooded, about a third of the total area (32.19%) being under forest, and give rise to numerous streams, the presence of which explains the abundance of pasture land and meadows and accounts for the thriving live-stock rearing industry which forms the main source of the wealth of the province. The highlands of the Maramureş, to the north, form part of Transylvania, and are separated from it by the river Somesh.

Bucovina forms a geographic unit with Moldavia and used to form part of that principality prior to its occupation by the

12: Kormos S-4, 5 (no date) 1944
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[Bessarabia]

by the valleys through which flow the tributaries of the Pruth and Dniester. In the south, beginning near Besarabeasca, extends the Budjak steppe which merges into the sandy soils, salt marshes and lagoons of the delta of the Danube and of the Black Sea coast. The climate of Bessarabia is the same as that of the regions east of the Dniester. The summers are very hot and dry, the winters very cold with icy winds and great snowfalls. Nevertheless, crops grow well in Bessarabia and 61% of the whole area is arable land. The chief products are maize, wheat, tobacco and wine and lately also soya beans. There are few factories and the only source of income for the people, apart from agriculture, is the fishing industry in the south.

The capital of Bessarabia is Kishineff (Chisinau[R]) with a population of over 200,000 (1935). Here are concentrated such industrial enterprises as the province possesses, the most important being flour mills, leather factories and other secondary industries connected with agriculture.

The first colonization of Bessarabia was carried out by the Romans who succeeded in occupying this territory only for a short time. During the great period of migration (seventh to tenth centuries), the province was invaded by a host of tribes. Bessarabia was first occupied by Rumanians in the early fourteenth century and incorporated in Moldavia in 1367. A century and a half later Southern Bessarabia fell to Turkey, but several merchant-colonies were still administered by Genoese and Venetian traders on the Danube delta and the Black Sea coast. In the following centuries Bessarabia was often a battleground for Russian and Turkish armies, who alter-

241 [474] peasant views with suspicion and often hostility all attempts at improvements in traditional methods. Even the co-operative societies have made less progress than in other Danubian countries. There is need for considerable capital expenditure in grouping small farms into larger units, in providing better buildings, more implements and fertilisers. There is need for diversification of production—more fodder crops and more animal husbandry. Above all, there is need for development in industry and commerce to provide work for the surplus agricultural population.

2. Natural Conditions and Regions

● 132 The climate is of the extreme Continental type, with long hot summers and severe winters. Precipitation is largely concentrated in winter and early summer. During the greater part of the growing and ripening season rains are light, and from time to time serious droughts occur which may ruin the grain crops.

133 311 The agricultural regions correspond to the natural divisions into plain and hill country—the Danube plain and Bessarabia which comprise the greater part of the territory and produce the bulk of the crops, and the hilly and mountainous land of Transylvania and the Bucovina.

[134] The plain is well-suited for agriculture, the soil over much of it being of the fertile *chernozem* or black earth type, but the backward methods of farming and the light rainfall keep yields per acre low.

[162] This region is not equally backward in all parts. The Rumanian Banat at the western end of the country, and formerly part of Hungary, is more prosperous and progressive. The population is not purely Rumanian but includes Swabians and Saxons, descendants of the German stock systematically settled there on medium-sized peasant holdings in the eighteenth century after the cession of the territory to Austria by the Turks. Methods and yields, by Rumanian standards, are good. [231] The livestock density is higher than the average and the area produces a substantial surplus of pigs. Rural overcrowding is not as marked as elsewhere.

241 133 Conditions of life and methods of farming are considerably worse in the plain land of the Old Kingdom. Agriculture here is as primitive as in any part of Eastern Europe, depending on an unbroken alternation of wheat and maize cultivation with little subsidiary production. Some wheat is marketed, but the maize is grown largely [311] for consumption on the farms. So little land is available per head of population that the farm population and working animals (which eat the maize stalks) can be fed only by devoting an excessive acreage to maize.

Bessarabia makes up the remainder of the plain land; conditions of settlement and farming methods are much the same as in the Old Kingdom, but the density of population is lower and there are substantial grain exports.

Given normal yields, every district of the plain area is at least self-sufficient in foodstuffs; indeed parts of it regularly produce large grain surpluses. Transitional areas between the Danube Valley and the Transylvanian plateau, such as the Carpatho-Moldavia and Carpatho-Muntenia areas, may,

[6c]